JC20 Rec'd PCT/PTO 24 AUG 2001

FORM PTO-1390 (REV. 11-2000) U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER	
2786-0186P	
U.S. APPLICATION NO. (If known, see 37 CFR 1.5)	
09/914227 NEW	

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/IL00/00114	February 23, 2000	February 24, 1999

TITLE OF INVENTION

PACKAGING METHOD AND APPARATUS

APPLICANT(S) FOR DO/EO/US

YAMAY, Yehuda

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau). WO 00/50305
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. ☐ is transmitted herewith.
   b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4)
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 20. below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98-International Search Report (PCT/ISA/210)
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:
    1.) PCT Substitute Sheets Letter w/ International Preliminary Examination Report (PCT/IPEA/409) and amendments
    2.) Eleven (11) sheets of Formal Drawings

U.S. APPLICATION NO (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY'S DOCKET NUMBER
09/914227 NEW	PCT/IL00/00114	2786-0186P

21. ☒ The following fees are submitted:	CALCULATIONS	PTO USE ONLY
BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5):		
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO. **$1,000.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$860.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO. **$710.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$690.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4). **$100.00**		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 860.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☒ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$ 130.00	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	17 - 20 =	0	X **$18.00**	$ 0	
Independent Claims	2 - 3 =	0	X **$80.00**	$ 0	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)	Yes		+ **$270.00**	$ 270.00	
			TOTAL OF ABOVE CALCULATIONS =	$ 1260.00	
☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				$ -630.00	
			SUBTOTAL =	$ 630.00	
Processing fee of **$130.00** for furnishing the English translation later than ☐20 ☐30 months from the earliest claimed priority date (37 CFR 1.492(f)).			+	$ 0	
			TOTAL NATIONAL FEE =	$ 630.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property			+	$ 0	
			TOTAL FEES ENCLOSED =	$ 630.00	
			Amount to be: refunded	$	
			charged	$	

a. ☒ A check in the amount of $ **630.00** to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account. No. _____ in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 02-2448.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

Send all correspondence to:
Birch, Stewart, Kolasch & Birch, LLP or Customer No. 2292
P.O. Box 747
Falls Church, VA 22040-0747
(703)205-8000

Date: August 24, 2001

By _____ #32,181
Marc S. Weiner, #32,181

/cqc

PATENT
2786-0186P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant:	YAMAY, Yehuda	Conf.:
Int'l. Appl. No.:	PCT/IL00/00114	
Appl. No.:	New	Group:
Filed:	August 24, 2001	Examiner:
For:	PACKGING METHOD AND APPARATUS	

PRELIMINARY AMENDMENT

BOX PATENT APPLICATION
Assistant Commissioner for Patents
Washington, DC 20231

August 24, 2001

Sir:

The following Preliminary Amendments and Remarks are respectfully submitted in connection with the above-identified application.

AMENDMENTS

IN THE SPECIFICATION:

Please amend the specification as follows:

Before line 1, insert --This application is the national phase under 35 U.S.C. § 371 of PCT International Application No. PCT/IL00/00114 which has an International filing date of February 23, 2000, which designated the United States of America and was published in English.

Docket No. 2786-0186P

REMARKS

The specification has also been amended to provide cross-referencing to the International Application.

Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By _____ #32,181

Marc S. Weiner, #32,181

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

MSW/cqc
2786-0186P

Attachment: VERSION WITH MARKINGS TO SHOW CHANGES MADE

Docket No. 2786-0186P

VERSION WITH MARKINGS TO SHOW CHANGES MADE

The specification has been amended to provide cross-referencing to the International Application.

(Rev. 8/15/01)

PACKAGING METHOD AND APPARATUS

FIELD OF THE INVENTION

The present invention concerns generally to a method and apparatus for packaging a product in a hermetically sealed container. The method and apparatus of the invention are particularly applicable to the packaging of food products, medical supplies or devices, although not limited to these applications.

BACKGROUND OF THE INVENTION

Very often a product contained within a container does not fill the entire container's space with the remaining space (to be referred to herein as the *"residual space"*) containing a gas. Often, the gas's composition plays a role in the product's shelf life. This is the case, for example, in containers holding food products. Air, which contains about 21% oxygen, facilitates growth and development of microorganisms that degrade the food product. There are many apparatuses and method which have been proposed and developed aimed at replacing the air in the residual space with another gas having a desired composition. For example, in the case of food products such a replacement gas is typically nitrogen or carbon dioxide.

In the context of this writing the gas which is introduced into the container to fill the residual space will be referred to herein as the *"replacement gas"*. As will no doubt be appreciated, the nature of the replacement gas depends on the type of product and the type of desired effect. In the case of food products, a replacement gas will be a gas which has a composition such that it does not permit growth and development of microorganisms, particularly a gas essentially devoid of oxygen. In the case of other kinds of products the replacement gas may have a

variety of different gas composition, for example: consisting of a chemically inert, e.g. a noble gas; consisting of a gas with a certain surface activity to treat or prepare the product: may be a disinfecting gas intending to destroy microorganisms which may be contained in or on the product; etc.

GENERAL DESCRIPTION OF THE INVENTION

The present invention is directed to a method and system for packaging a product within a container such that the residual space is substantially filled with a replacement gas. The type of container to which the invention pertains is such made from a rigid or semi-rigid body having side walls with rims defining a product-introducing opening. The container body may have a base with side walls extending therefrom; it may be conical; it may be hemispheric. Such a body of a container will be referred to herein as *"cup-like shaped body"*. The cup-like shaped body may have a generally rectangular base, a circular or oval base, may be elongated or flat (having a dish-like shape), may be a container formed with a partition for separate storage of two different components in two individually sealed compartments, e.g. granola in one compartment and yogurt in the other; and a variety of different shapes. It may readily be appreciated that the invention is not limited to containers of a different shape and any container having a cup-like shaped body, as defined herein, may be filled by the use of the apparatus and method of the invention.

The term *"rigid"* or *"semi-rigid"* refers to the ability of the container self-sustaining its shape. An example of a container body with these properties is such made of tin, or preferably a container body made of a rigid plastic material of the kind typically used for a variety of food products such as dairy products. A rigid or semi-rigid body may also be a body made of a flexible material reinforced by ribs, by fold lines formed by welding, or by a variety of other reinforcing means known *per se*, imparting a shape-retaining property onto said body.

The present invention provides, by a first of its aspects, a method for packaging a product in a hermetically sealed container having a cup-shaped rigid or semi-rigid body with a rim fitted with a closure, the method comprising:

(a) introducing the product into said cup-like shaped body;

(b) forming an isolated space with a gas inlet and a gas outlet, the space defined between said body and a closure-forming member adjacent to and with a clearance from said rim;

(c) introducing a replacement gas through said inlet to replace at least a substantial portion of gas originally contained in said isolated space; and

(d) displacing at least one of said body or said closure-forming member towards the other of the two members to close said clearance and to attach the closure-forming member to said rim, and hermetically attaching the two to one another to form a gas-tight ~~steel.~~ seal.

As will be appreciated, steps (a) and (b) may be performed one after the other in the given order; may be in their reversed order, namely first forming the isolated space and then introducing the product ~~is introduced~~ into the container within such space; or the two steps may be carried out simultaneously.

By its second aspect, the present invention provides an apparatus for forming a hermetically sealed product-containing container, the container having an essentially cup-like shaped body with rims fitted with a closure; the product not filling the entire container leaving residual space therein; the apparatus comprising:

- a holder for holding said container body;
- a spacer member sealingly engageable with said holder and with a closure-forming member, and having an opening; in a state of seal engagement of said spacer member with said holder and said closure-forming member, said opening, said container body and said closure-forming member, define together the isolated space;
- a gas inlet and a gas outlet for introducing a replacement gas into said isolated space, and exhausting gas therefrom, respectively; and

- a sealing mechanism comprising a displacing arrangement for displacing one or both of said container body and said closure-forming member towards one another and attaching them to one another in a gas-tight fashion.

The closure of the container may in principle be any closure which can be made to form a hermetically sealed attachment with the container body. In the case of a container body made of a plastic material, the closure-forming member is preferably heat weldable, for heat welding to the body's rim. Such a film is preferably a laminate as generally known in the art, for example a laminate of two plastic films, a laminate of a plastic film and aluminum foil, a laminate consisting of more than two layers, and many others, all as known *per se*. It should however be appreciated that although a closure-forming member made of a film is but one embodiment and other embodiments, such as a closure forming member made from a rigid or semi-rigid plastic material may also be employed.

Where said closure-forming member is a film, in order to close said clearance, at least a portion of the film will typically be pushed towards the rim of the container's body and then heat welded thereto, followed by trimming the film around the rim.

In accordance with one, currently preferred, embodiment of the invention, the gas outlet is connected to the external atmosphere. In accordance with another embodiment, the gas outlet is connected to a vacuum source. Where a vacuum source is employed, typically but not exclusively, the vacuum is first applied, gas is drained from within said isolated space, and only after a period of time allowing for gas drainage, the replacement gas is introduced.

In accordance with the above preferred embodiment, said holder is a planar member formed with an opening for receiving and engaging the container body. The holder is typically provided with a skirt surrounding the opening for holding and engaging the rims of said container body.

The gas outlet may be formed by bores in said holders, preferably bores leading from a portion adjacent said opening therein to the outside atmosphere.

Alternatively. the gas outlet may also be constituted by bores within said spacer member.

The gas inlet is typically formed within said spacer member. The gas inlet preferably comprising a plurality of nozzles. Where the gas outlet is formed in said spacer, such nozzles will usually be formed in portions of the spacer member other than portions hosting the gas outlet bores. The nozzles will usually be directed into the isolated space so as to ensure sufficient turbulence for effective flushing of the residual space with the replacement gas.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to understand the invention and to see how it may be carried out in practice, preferred embodiments will now be described, by way of non-limiting example only, with reference to the accompanying drawings, in which:

Fig. 1 is an exploded view of an apparatus in accordance with a preferred embodiment of the invention.

Fig. 2 is an isometric view of the apparatus of Fig. 1.

Figs. 3A-4A shows the apparatus of Fig. 1 in several operational steps, where Figs. 3A-3E are partially cut, isometric views, and Figs. 4A-4F are partial and cross-sectional longitudinal views of the apparatus in corresponding operational steps.

Fig. 5 is an exploded view of an apparatus in accordance with another embodiment of the invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Reference is first being made to Figs. 1 and 2 showing an apparatus in accordance with an embodiment of the invention. Fig. 1 shows the apparatus generally designated **100**, in an exploded view. Fig. 2 shows an apparatus as a workstation in a packing line generally designated **102**. The apparatus **100** comprises, as can best be seen in Fig. 1, a holder **104** for holding a rigid or semi- rigid cup-shape container body **106**, received within opening **108** fitted with an upright

skirt **110**. Holder **104** is held in accordance with one embodiment of the invention, on a revolving feeding carousel **120** seen in Fig. 2.

Three holders are seen in Fig. 2, the first designated **104′**, accommodating a container filled with a pasty substance **122** prior to its introduction to apparatus **100**; the second designated **104″** being situated and forming a functional part of workstation **100**: the third designated **104‴** accommodating a sealed container exiting from workstation **100′** sealed with a closure **124**. It is thus apparent that carousel **102** isolates in the direction of arrow **126**.

As will be appreciated, although the invention will be described herein with particular reference to the application for packaging a pasty-food product, particularly a dairy product, it is clear that the invention is not limited thereto and it applies, *mutatis mutandis*, to packaging of a variety of other food products, as also defined above.

Holder **104** is formed with gas outlet bores **112**.

Apparatus **100** further comprises a spacer member **130** formed with a central opening **132**, there being a plurality of gas inlet nozzles **134** pointing towards the opening's interior. Gas nozzles **134** are in flow communication with replacement gas inlet pipe **136**, connected to a source of replacement gas (not shown). In the case of a food product, the replacement gas is typically nitrogen or carbon dioxide.

The apparatus further comprises a sealing and trimming mechanism **150** comprising a film pressing plate **154**; displacement limiting members **156** fitted over axial rods **157**, limiting upwards displacement of plate **154**; a film displacement and heat welding plate **160** having two bores **162** engaged with the end **168** of a spring biased piston rod **164** held by plate **166**. Plate **166** is engaged at its bore **170** to the end of pneumatic or hydraulic piston rod **176** and axially displaceable thereby. The apparatus further has a trimming member **180**.

Two pneumatic or hydraulic piston members **182** and **184** with piston rods **186** and **188**, respectively are provided, and are connected, through respective bores **190** and **192** to pressing plate **154**.

As can best be seen in Fig. 2, the apparatus is fed with a continuous film 200 constituting a closure-forming member, which extends between spacer 130 and film pressing plate 154. In a manner to be described further below, the used film exiting the apparatus and fed to a pickup spool (not shown) has cutouts 202 resulting from cutting out a portion used for closure of the container.

The operation of the apparatus will now be described with reference to Figs. 3A-4F.

A first step of operation can be seen in Figs. 3A and 4A. Container body 106, having in this specific embodiment inverted frustoconical shape, is received within holder 104 with the container's rim 107 resting over skirt 110. A film sheet 200 is tensioned between the spacer member 130 and film pressing plate 154 with sealing and trimming mechanism 150 being in a state such that plate 160 is distanced from the film. Film pressing plate 154 is displaced axially in its downward direction by means of the pneumatic or hydraulic pistons 182 and 184, extracting and retracting the respective piston rods 186 and 188 and which are articulated at bores 190 and 192, respectively to the plate 154.

At a next stage seen in Figs. 3B and 4B, the holder 104 and the remaining part of apparatus 100 are mutually displaced (either by elevating holder 104 or by lowering the reigning parts of the apparatus) so as to bring to engagement of spacer member 130 with peripheral portion 109 (Fig. 4A), with an O-ring 111 fitted within a groove at a bottom face of spacer member 130, ensuring that the attachment will be in a gas-tight manner (not permitting gas passage through interface between these two bodies.

In a next step shown in Figs. 3C and 4C, pressing plate 154 is lowered by means of piston rods 186 and 188, whereby the film is pressed between juxtaposed faces of plate 154 and upper face of spacer 130. The O-ring 190 received within groove in the upper face of spacer member 130, ensures a gas-tight seal between film 200 and the spacer member. In this manner, an isolated space 204 ~~defines~~ is define

ART 34 AMDT

spacer member **130**.

Container body **106** contains a pasty food product. e.g. a dairy product **122** filled up to a certain level and leaving a residual space **210** between the upper face of the pasty food product **122** and the container's rim **107**.

In the next step, seen in Fig. 4D, a replacement gas is introduced through nozzles **134** to generate a turbulent flow represented schematically by solid, curved arrowed lines **216**, resulting in flushing of the residual space 210 with the replacement gas. At the same time, gas is evacuated to the external atmosphere through bores **112**. as represented schematically by dashed curved arrowed lines **218**. In this specific embodiment the nozzles 134 are at a level which is below that of the rim **107** of the container body 106. This is in order to avoid direct blow of air jets on the food product 122, which can cause the formation of an aerosol which is undesired. It should however be appreciated that this position of the nozzles 134 is but an example and in other embodiments there may be other positions of the nozzles 134 including such above the rim's level.

A subsequent step can be seen in Figs. 3D and 4E in which a sub-assembly consisting of plate **166**, welding plate **160** and trimming member **180** is lowered towards the film **200**, pushing the film **200** downwards to tightly engage rim **107** while the heat generated by plate **160** causes the film to weld to the rim. Plate **160** is downwardly biased by means of coiled-spring pistons **164** and thus the lower face of member **160** is at a lower level than the cutting edge **181** of trimming member **180**. This axial displacement of the sub-assembly is achieved by means of piston rod **177** extending out of piston member **176**.

At a next step, seen in Figs. 3E and 4F this sub-assembly continues its downward movement, represented by arrows **226** in Fig. 4F, causing compression of the spring within piston **164**, bringing to an additional downward pressure for better sealing of film **200** onto rim **107**, this downward displacement bringing to lowering of trimming edge **181** of trimming member **180** so as to trim film **200**.

replacement gas. is formed.

Reference is now being made to Fig. 5 showing another embodiment in accordance with the invention. The apparatus **300** in accordance with this embodiment is identical at most of its components to the embodiment of Fig. 1 and only the differences will be outlined hereinbelow. Hereinbelow, when reference will be made to like components, they will be designated by the same reference numeral as used in the embodiment described above, shifted by **200**.

Spacer member **330** is provided with a replacement gas inlet **336** and a gas outlet **600** leading to a vacuum source (not shown). Gas inlets and gas outlets are connected to corresponding nozzles **334** (only ~~once~~ one set seen in this figure).

Another difference resides in the provision of a vacuum-forming cup **604** connected through tube **606** to the vacuum source. The vacuum-forming cup **604** is axially displaceable by means of piston **610** and is adapted for ~~a~~ sealing engagement with a bottom surface of holder **304**, by means of O-ring **612**.

Bores **312** lead into the interior of vacuum-forming cup **604**.

In operation, a vacuum forming cup is attached to the bottom of holder **304** and the vacuum source is connected leading to the formation of a vacuum within the confined space. In addition, the vacuum within the interior of vacuum-forming cup **604** ensures that the container body **306** does not collapse from the vacuum applied at its interior.

Apart from the above noted differences, the operation of an apparatus in accordance with this embodiment is essentially the same as the apparatus in accordance with the embodiment described above.

CLAIMS:

1. A method for packaging a product in a hermetically sealed container having a cup-shaped rigid or semi-rigid body **106** with a rim **107** fitted with a closure **200**, the method comprising:

(a) introducing the product into said cup-like shaped body **106**;

(b) forming an isolated space **204** with a gas inlet **134** and a gas outlet **112**, the space **204** defined between said body **106** and a closure-forming member **200** adjacent to and with a clearance from said rim **107**;

(c) introducing a replacement gas through said inlet **134** to replace at least a substantial portion of gas originally contained in said isolated space **204**; and

(d) displacing at least one of said body **106** or said closure-forming member **200** towards the other of the two members to close said clearance and to attach the closure-forming member to said rim **107**, and hermetically attaching the two to one another to form a gas-tight steel.

2. A method according to Claim 1, wherein said product is a pasty material.

3. A method according to Claim 1 or 2, wherein said product is a food product.

4. A method according to Claim 1, wherein the closure-forming member is a film.

5. A method according to Claim 1, wherein the gas outlet is formed by bores **211** leading from the isolated space **204** to the external atmosphere.

6. A method according to Claim 1, wherein the gas outlets are bores **312** in gas communication with a vacuum source **604**.

7. An apparatus for forming a hermetically sealed product-containing container, the container having an essentially cup-like shaped body **106** with rims **107** fitted with a closure **200**; the product not filling the entire container leaving residual space **204** therein: the apparatus comprising:

- a holder 104 for holding said container body 106;
- a spacer member 130 sealingly engageable with said holder 104 and with a closure-forming member, and having an opening 132 in a state of seal engagement of said spacer member 130 with said holder 104 and said closure-forming member 200, said opening 132, said container body 106 and said closure-forming member 200, define together an isolated space 204;
- a gas inlet 134 and a gas outlet 112 for introducing a replacement gas into said isolated space 204, and exhausting gas therefrom, respectively; and
- a sealing mechanism comprising a displacing arrangement for displacing one or both of said container body 106 and said closure-forming member 200 towards one another and attaching them to one another in a gas-tight fashion.

8. An apparatus according to Claim 7, wherein said holder 104 has an opening 108 for receiving the container body 106 of the container.

9. An apparatus according to Claim 8, wherein the opening 108 of the holder 104 is fitted with an axially projecting skirt 110 for engagement with the rim 107 of the container 106.

10. An apparatus according to Claim 7, wherein the holder 104 is provided with bores 112, serving as gas outlets.

11. An apparatus according to Claim 7, wherein said spacer member 130 has gas inlet nozzles 134 formed so they open into said opening 132 for introducing a replacement gas into a sealed space.

12. An apparatus according to Claim 7, wherein said sealing mechanism displaces said closure forming member 200 to sealingly engage said rim 107, through the opening 132 of said spacer member 130.

13. An apparatus according to Claim 1, wherein said closure forming member is a heat weldable film ~~200~~, said container body 106 is made of a plastic material, and the engagement of the film to the container body's rim is by means of heat welding.

14. An apparatus according to Claim 13, comprising a trimming member 180 for trimming edges of the film 200 after the heat welding.

15. An apparatus according to Claim 7, wherein said gas outlet is connected to a vacuum source ~~606~~.

16. An apparatus according to claim 14, wherein the trimming member 180 and a heat sealing plate 160 of the sealing mechanism are axially displaceable through an opening in the spacer member 130.

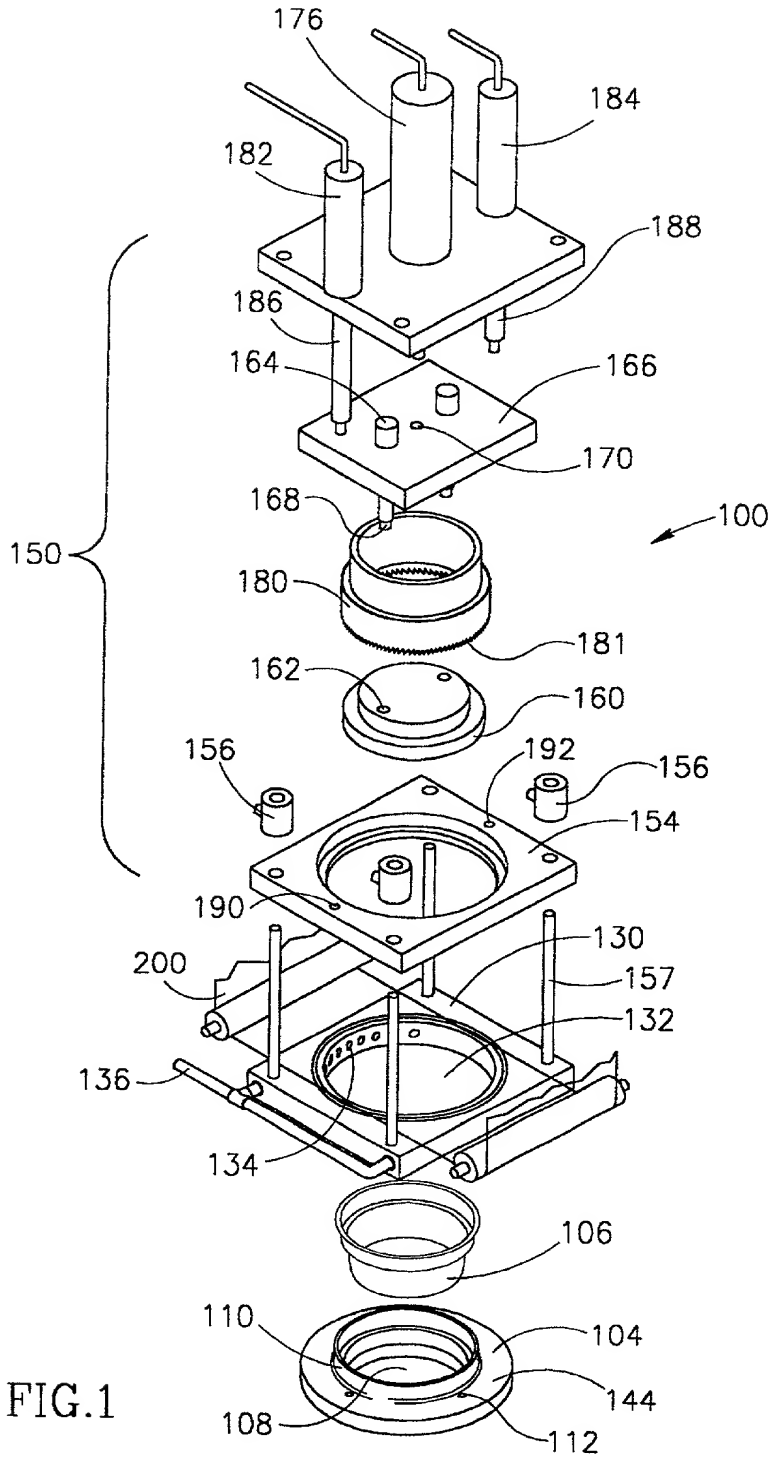

FIG.1

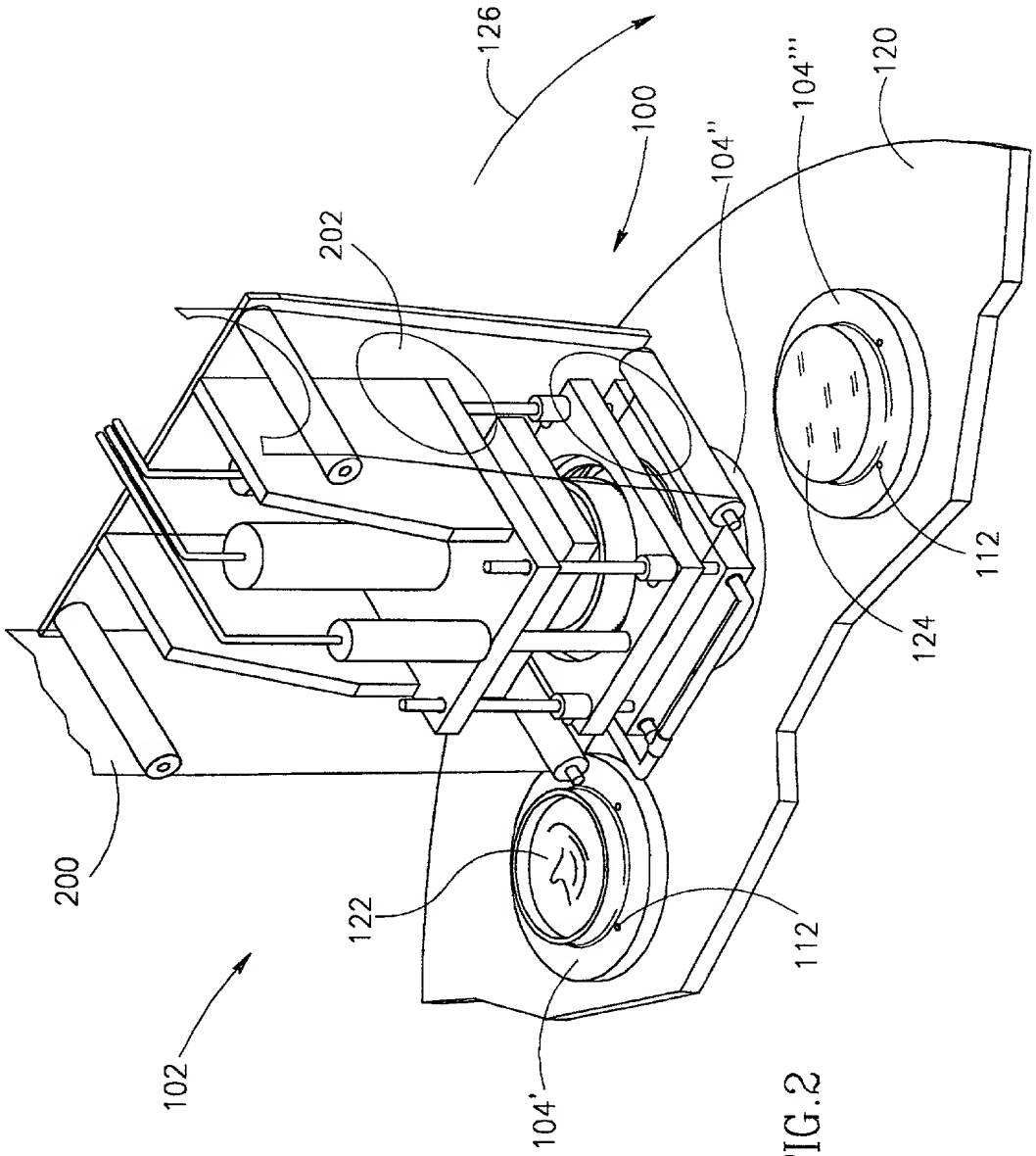

FIG.2

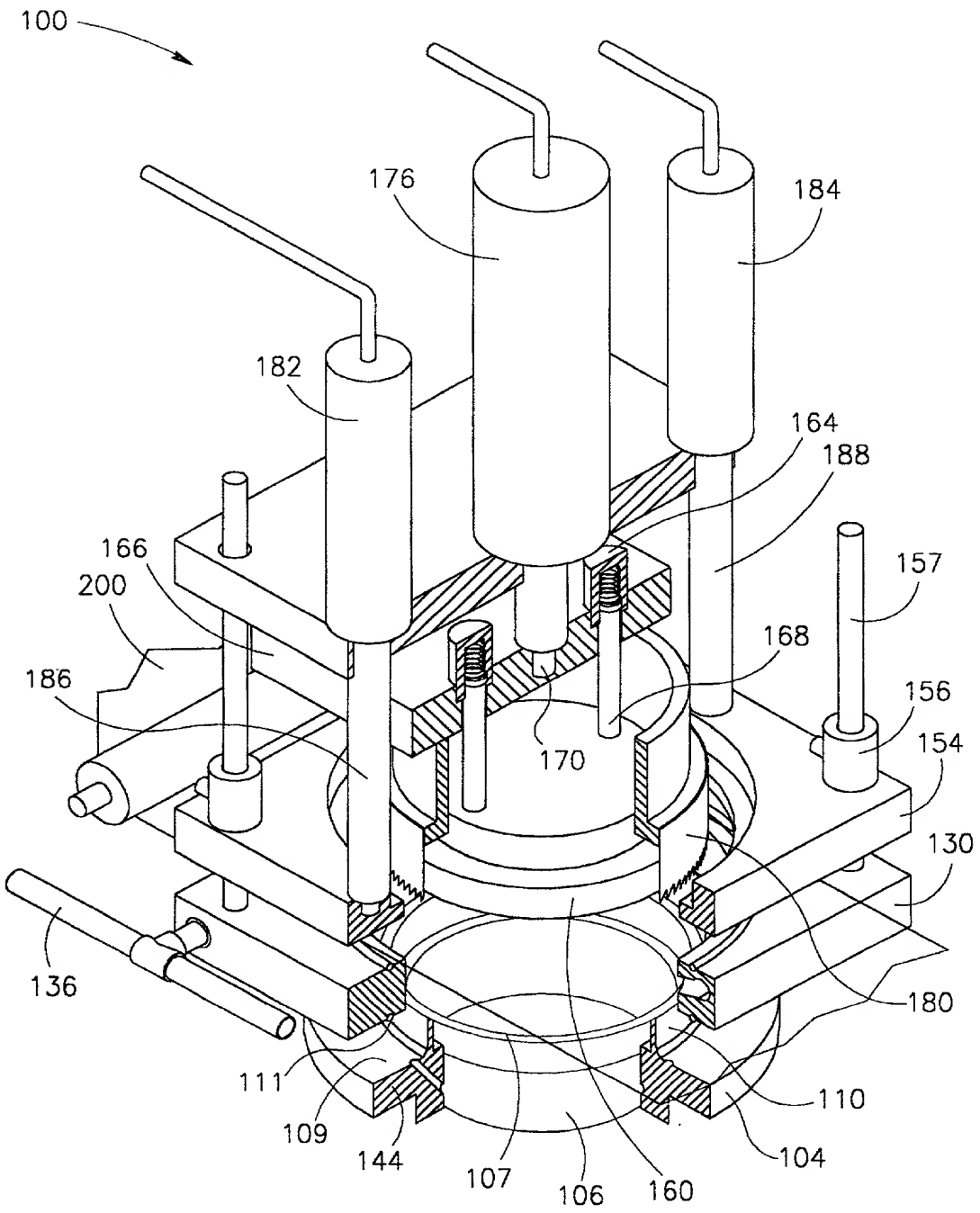
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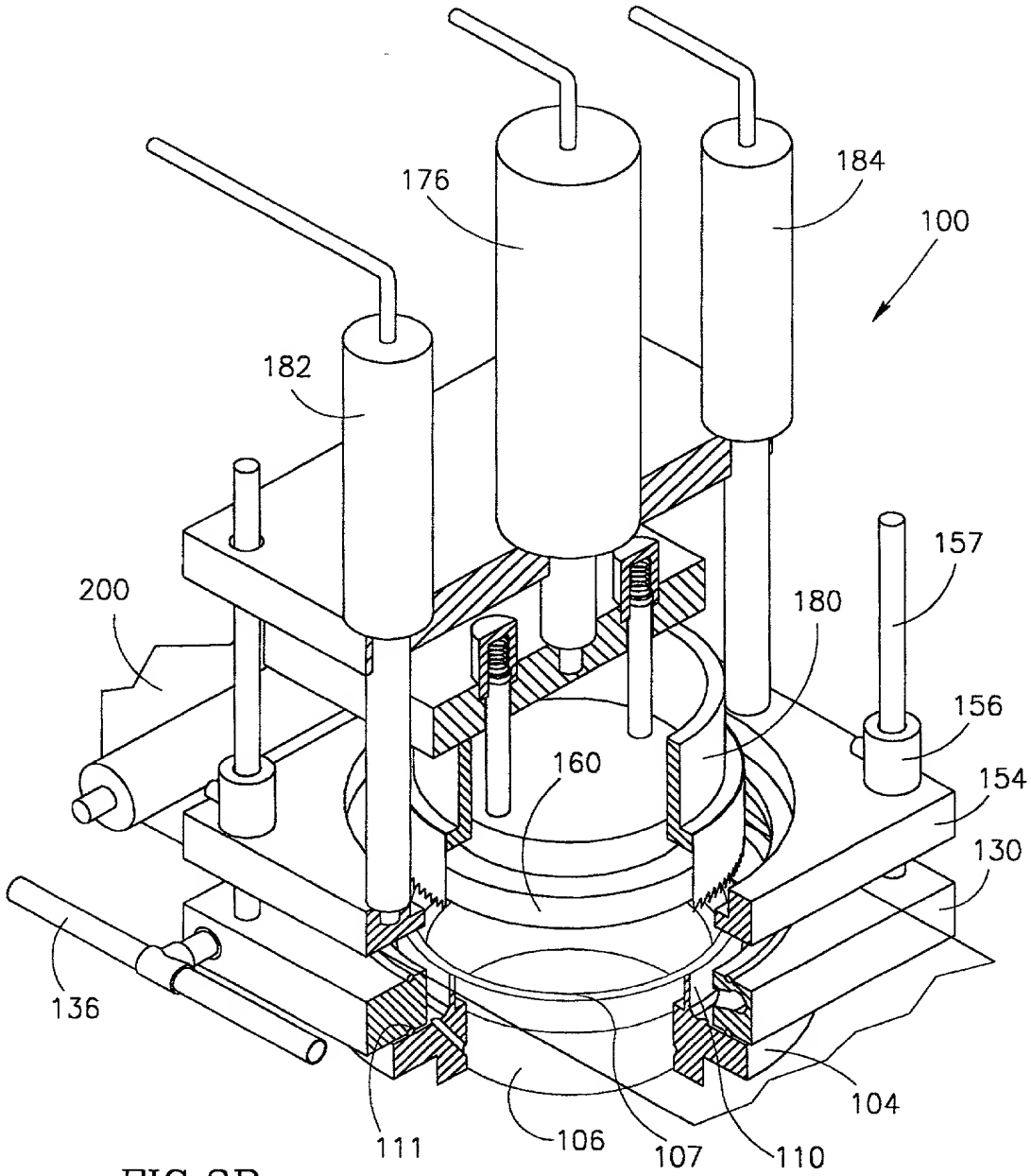
FIG.3A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110

FIG.3B

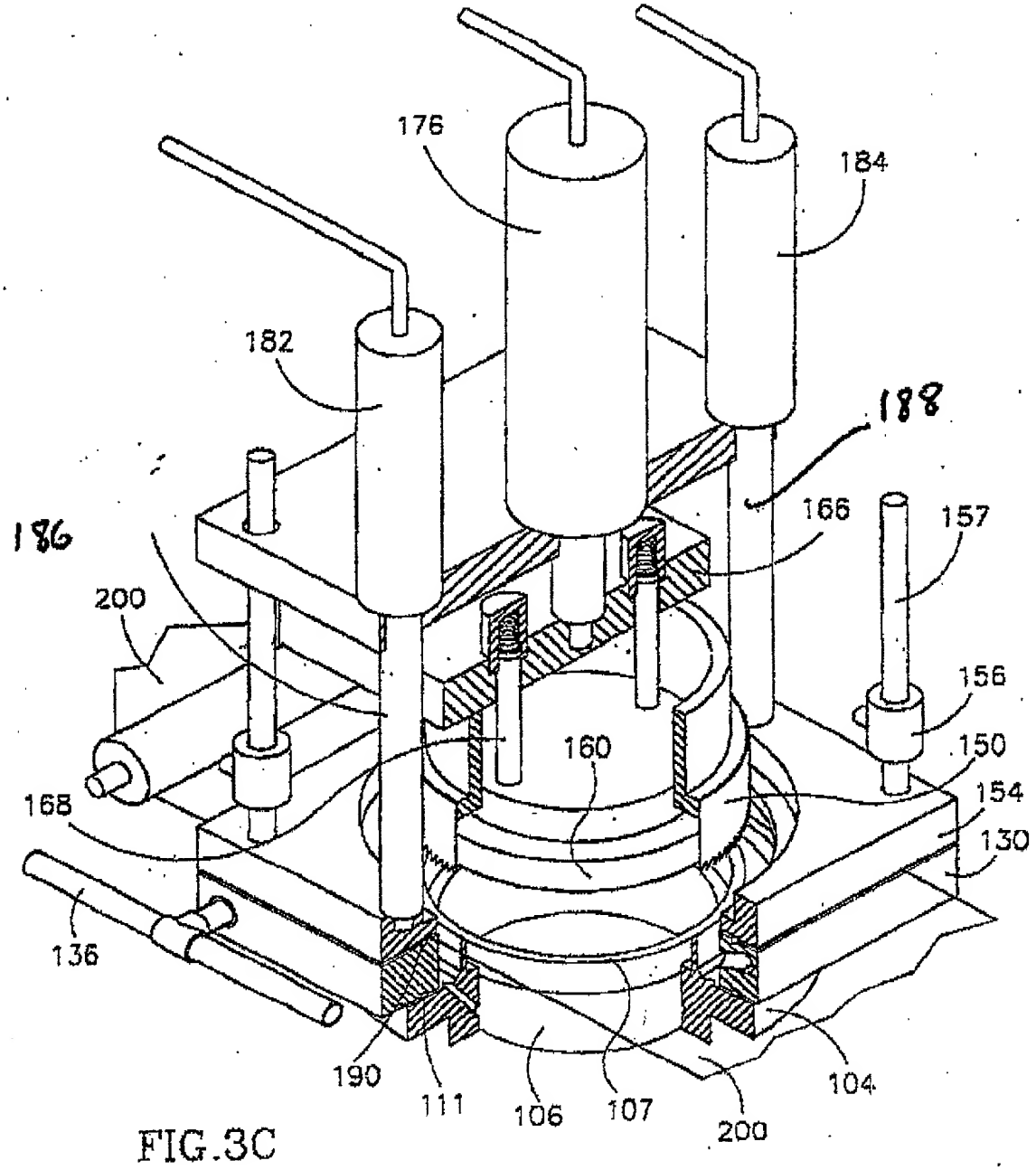
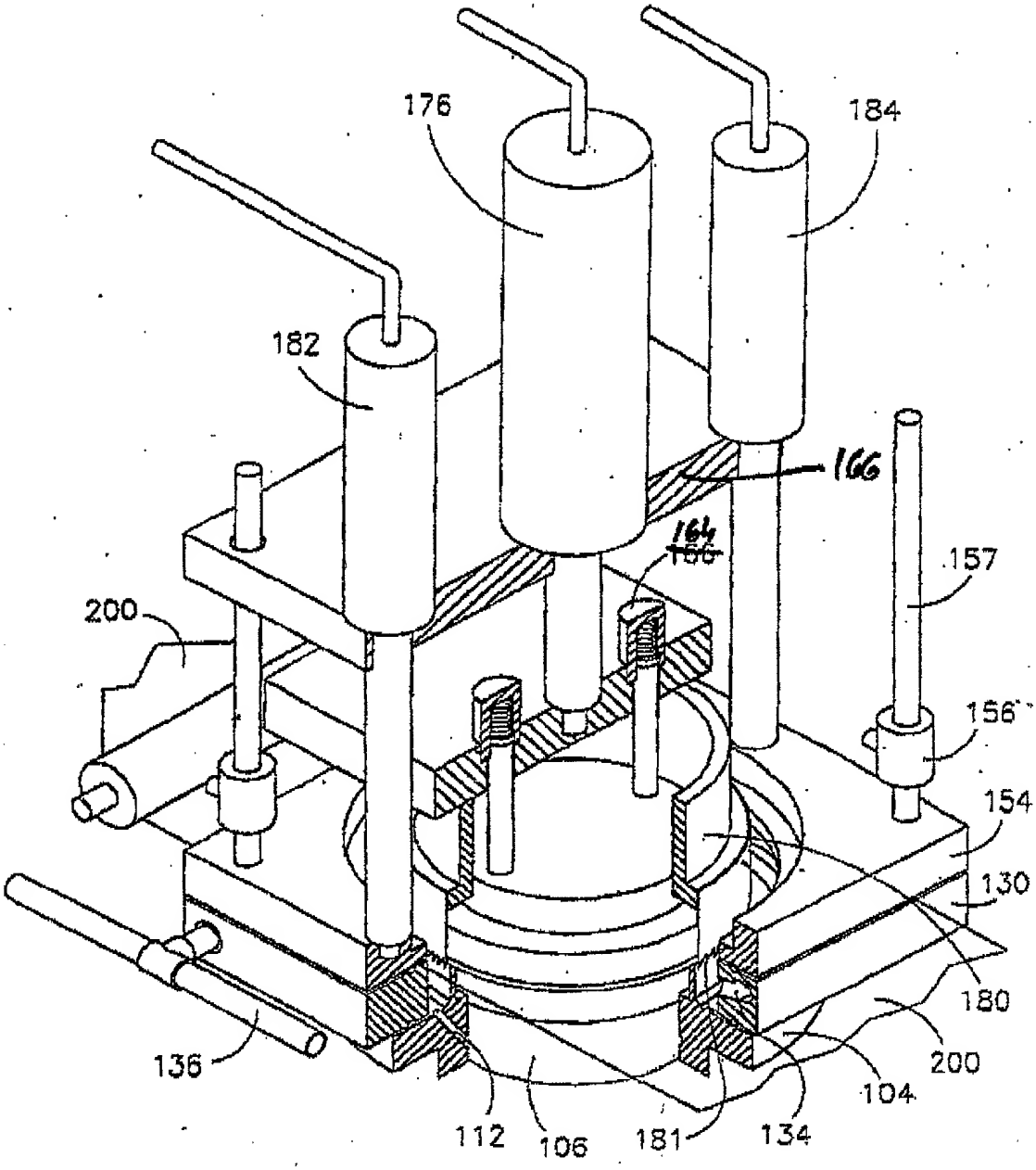


FIG.3C


176
184
182
166
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136
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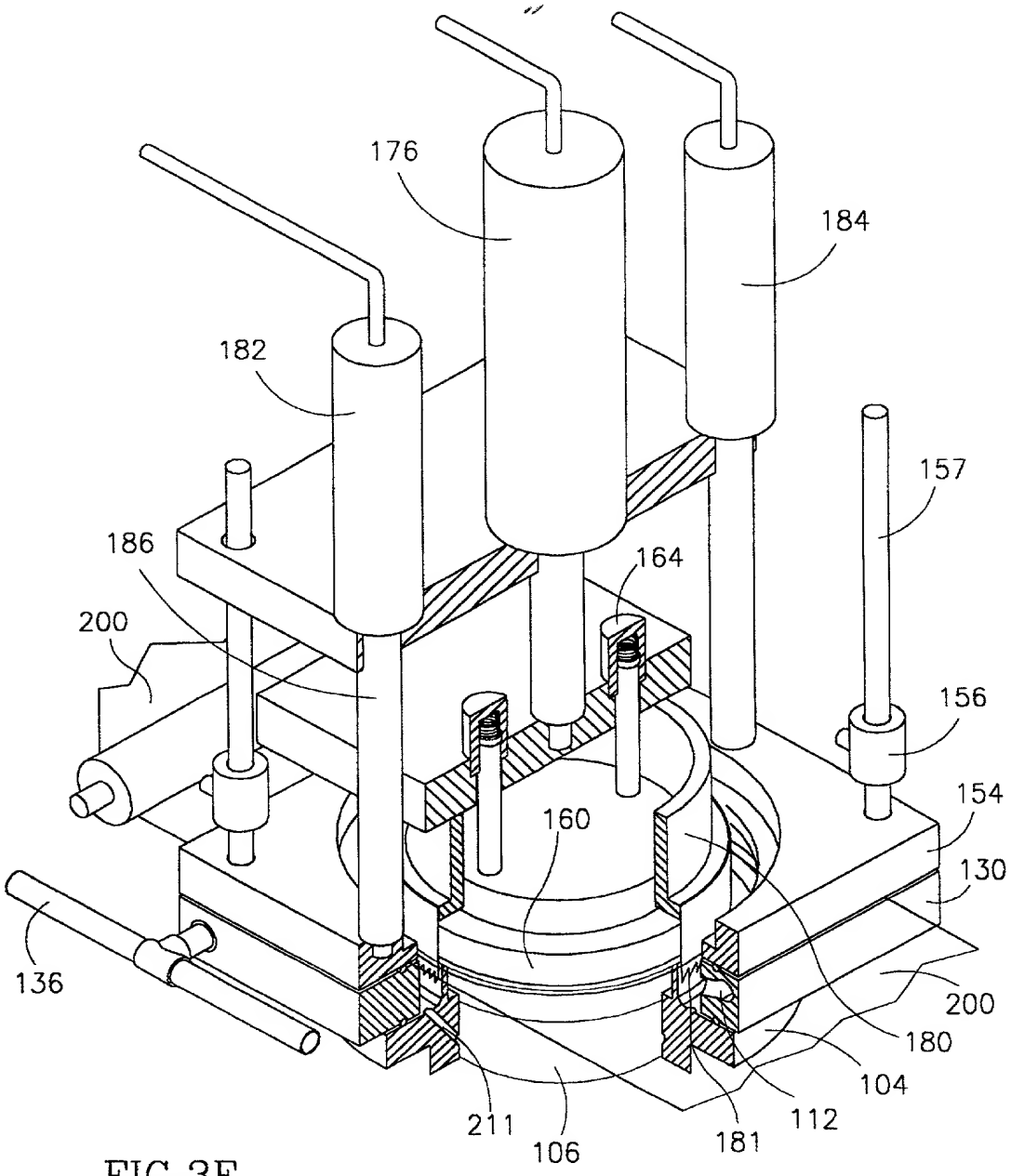
181
134

FIG.3D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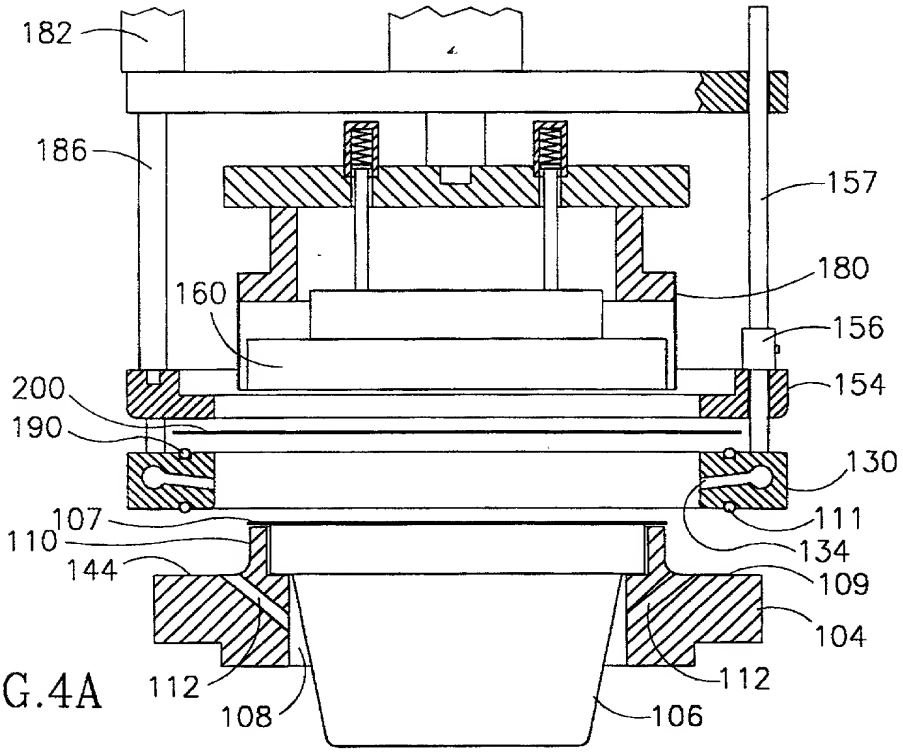
181

FIG.3E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186
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FIG.4A

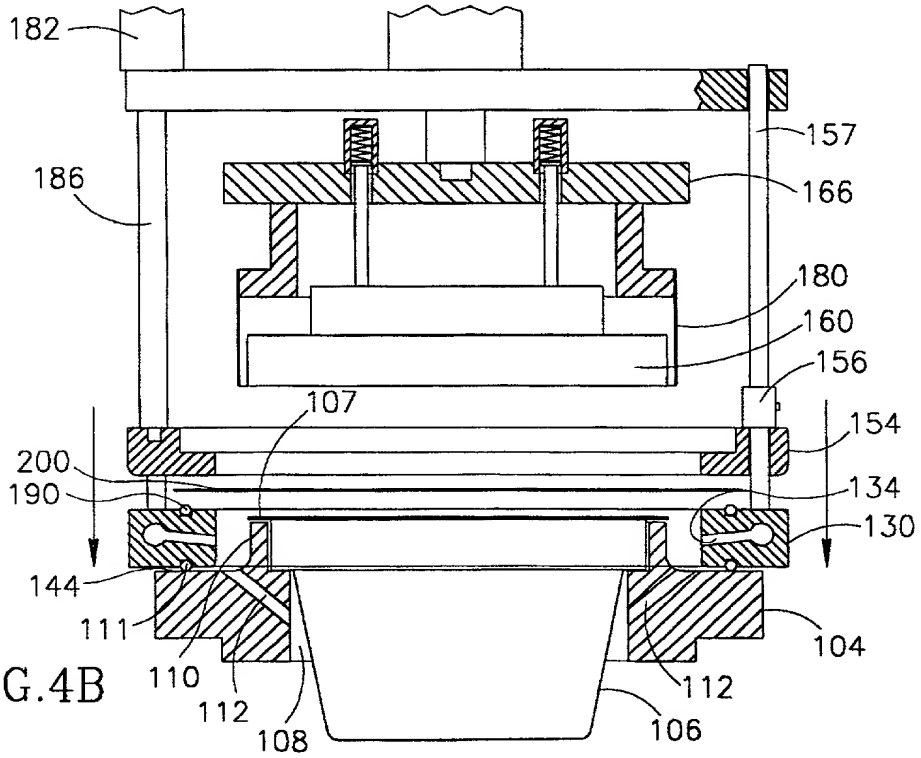
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FIG.4B

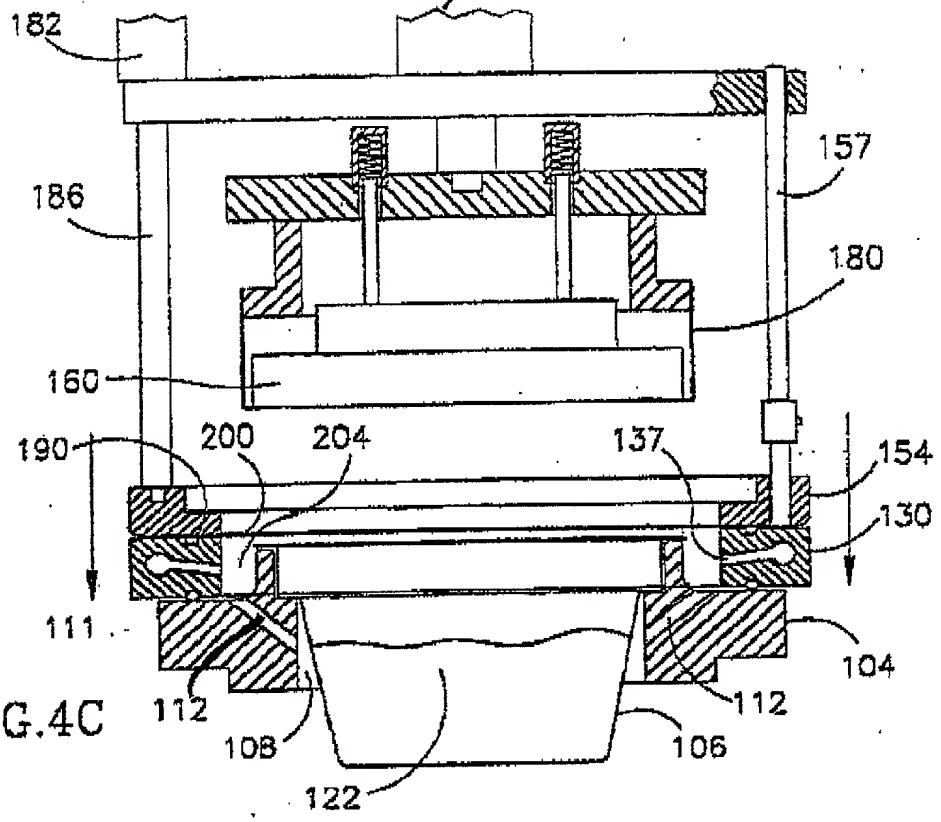
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FIG.4C

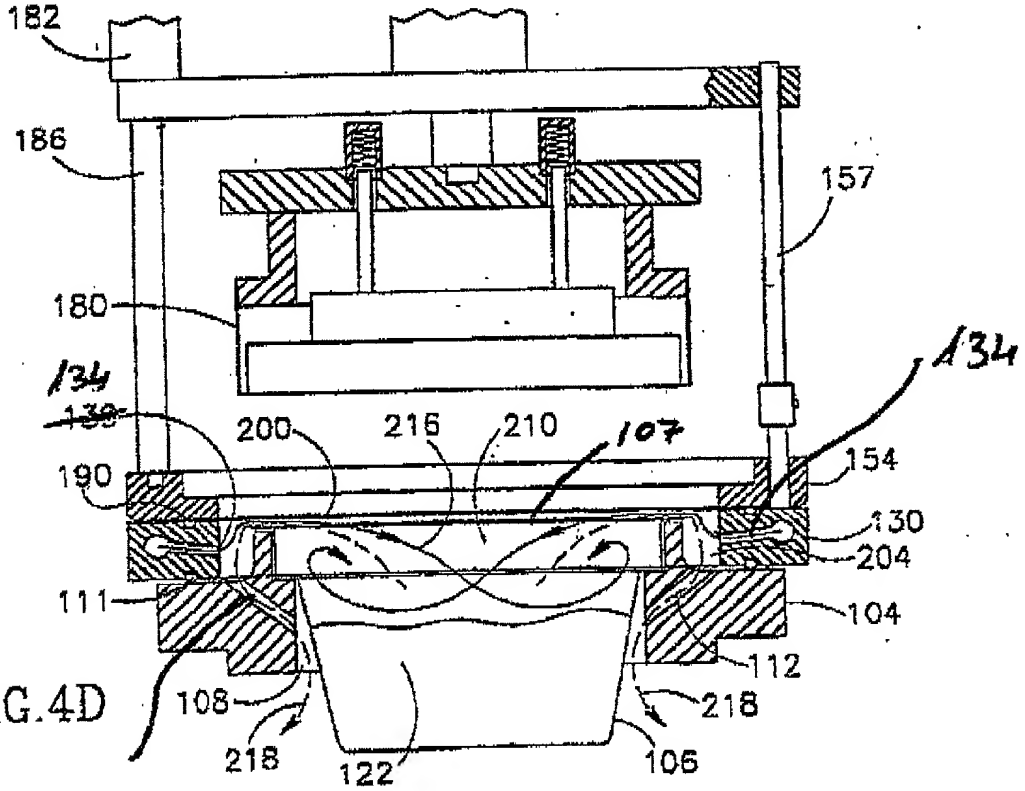
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FIG.4D

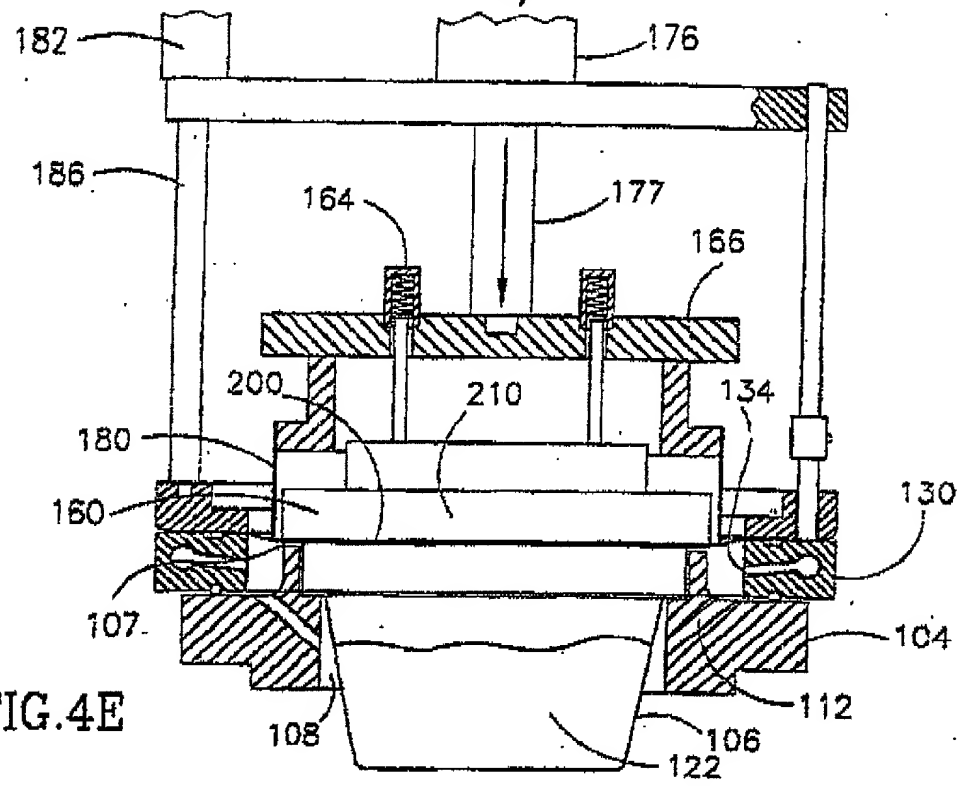
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FIG.4E

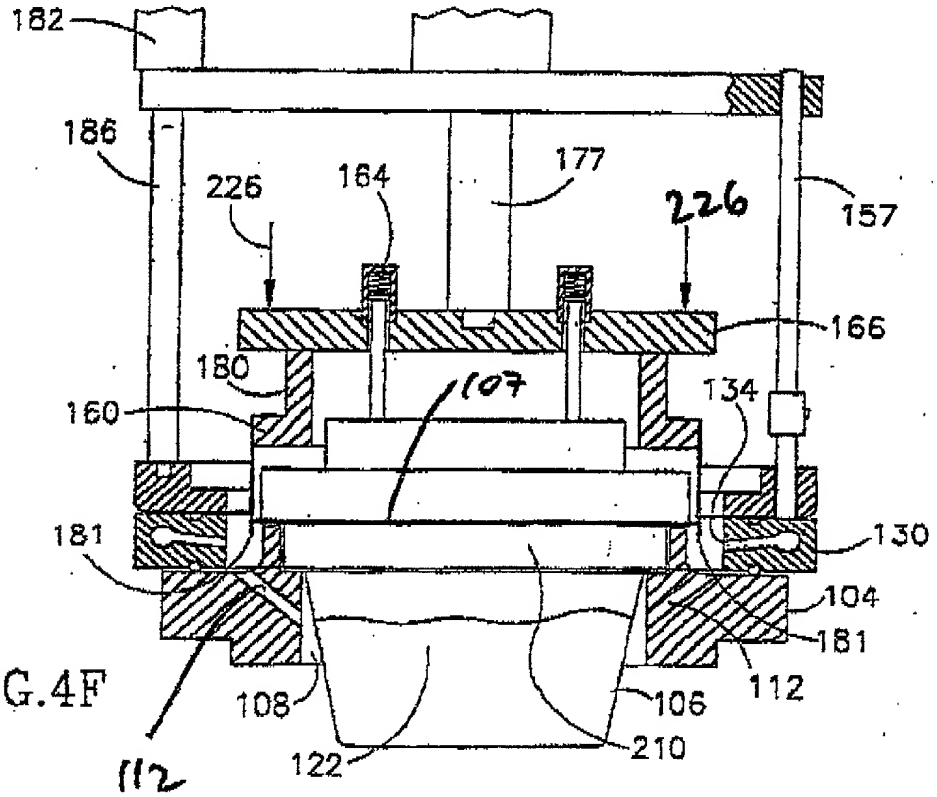
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FIG.4F

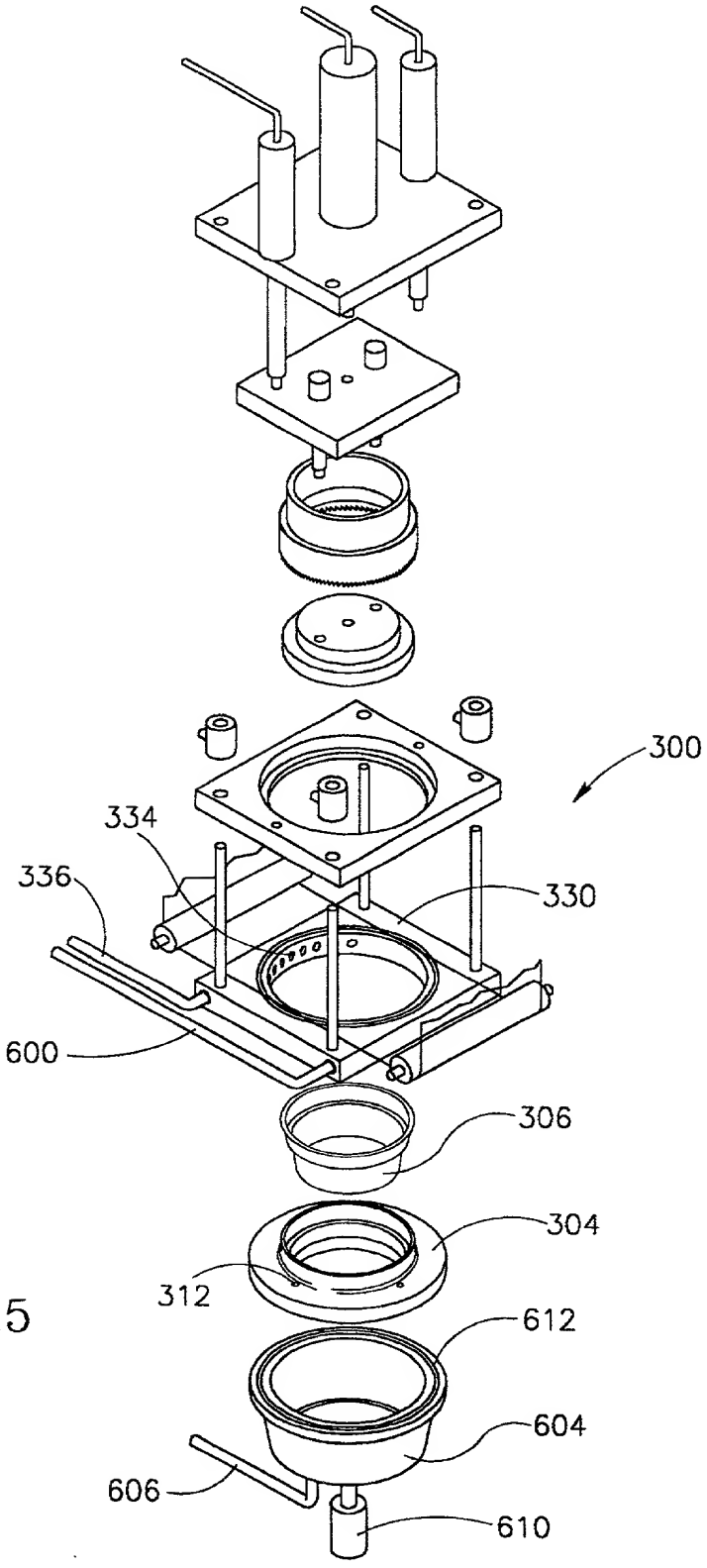

FIG.5

Attorney Docket No. 2786-0186P

BIRCH, STEWART, KOLASCH & BIRCH, LLP

P.O. Box 747 •·Falls Church, Virginia 22040-0747
Telephone: (703) 205-8000 • Facsimile: (703) 205-8050

PLEASE NOTE: YOU MUST COMPLETE THE FOLLOWING

COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT AND DESIGN APPLICATIONS

As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated next to my name; that I verily believe that I am the original, first and sole inventor (if only one inventor is named below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Insert Title: PACKAGING METHOD AND APPARATUS

Fill in Appropriate Information - For Use Without Specification Attached:

the specification of which is attached hereto. If not attached hereto,
the specification was filed on August 24, 2001 as
United States Application Number ____;
and amended on August 24, 2001 (if applicable) and/or
the specification was filed on February 23, 2000 as PCT
International Application Number PCT/IL00/00114; and was
amended under PCT Article 34 on February 14, 2001 (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months (six months for designs) prior to this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as follows.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Insert Priority Information: (if appropriate)

Prior Foreign Application(s)			Priority Claimed	
128710 (Number)	Israel (Country)	February 24, 1999 (Month/Day/Year Filed)	☒ Yes	☐ No
132708 (Number)	Israel (Country)	November 2, 1999 (Month/Day/Year Filed)	☒ Yes	☐ No
(Number)	(Country)	(Month/Day/Year Filed)	☐ Yes	☐ No
(Number)	(Country)	(Month/Day/Year Filed)	☐ Yes	☐ No

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional applications(s) listed below.

Insert Provisional Application(s): (if any)

(Application Number)	(Filing Date)
(Application Number)	(Filing Date)

All Foreign Applications, if any, for any Patent or Inventor's Certificate Filed More than 12 Months (6 Months for Designs) Prior to the Filing Date of This Application:

Insert Requested Information: (if appropriate)

Country	Application Number	Date of Filing (Month/Day/Year)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States and/or PCT application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States and/or PCT application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to the patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

Insert Prior U.S. Application(s): (if any)

(Application Number)	(Filing Date)	(Status - patented, pending, abandoned)
(Application Number)	(Filing Date)	(Status - patented, pending, abandoned)

Attorney Docket No. 2786-0186P

I hereby appoint the following attorneys to prosecute this application and/or an international application based on this application and to transact all business in the Patent and Trademark Office connected therewith and in connection with the resulting patent based on instructions received from the entity who first sent the application papers to the attorneys identified below, unless the inventor(s) or assignee provides said attorneys with a written notice to the contrary:

Raymond C. Stewart	(Reg. No. 21,066)	Terrell C. Birch	(Reg. No. 19,382)
Joseph A. Kolasch	(Reg. No. 22,463)	James M. Slattery	(Reg. No. 28,380)
Bernard L. Sweeney	(Reg. No. 24,448)	Michael K. Mutter	(Reg. No. 29,680)
Charles Gorenstein	(Reg. No. 29,271)	Gerald M. Murphy, Jr.	(Reg. No. 28,977)
Leonard R. Svensson	(Reg. No. 30,330)	Terry L. Clark	(Reg. No. 32,644)
Andrew D. Meikle	(Reg. No. 32,868)	Marc S. Weiner	(Reg. No. 32,181)
Joe McKinney Muncy	(Reg. No. 32,334)	Donald J. Daley	(Reg. No. 34,313)
John W. Bailey	(Reg. No. 32,881)	John A. Castellano	(Reg. No. 35,094)
Gary D. Yacura	(Reg. No. 35,416)	Thomas S. Auchterlonie	(Reg. No. 37,275
Mark J. Nuell	(Reg. No. 36,623)		

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Send Correspondence to:

BIRCH, STEWART, KOLASCH & BIRCH, LLP or **Customer No. 2292**
P.O. Box 747 • Falls Church, Virginia 22040-0747
Telephone: (703) 205-8000 • Facsimile: (703) 205-8050

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of First or Sole Inventor: Insert Name of Inventor
Insert Date This Document is Signed →
Insert Residence
Insert Citizenship →
Insert Post Office Address →

GIVEN NAME/FAMILY NAME	INVENTOR'S SIGNATURE	DATE*
Yehuda YAMAY	X	X3/10/01
Residence (City, State & Country)		CITIZENSHIP
Byniamina ISRAEL IL X		Israeli
MAILING ADDRESS (Complete Street Address including City, State & Country)		
P.O. Box 56, 30500 Byniamina ISRAEL		

Full Name of Second Inventor, if any: see above

GIVEN NAME/FAMILY NAME	INVENTOR'S SIGNATURE	DATE*
Residence (City, State & Country)		CITIZENSHIP
MAILING ADDRESS (Complete Street Address including City, State & Country)		

Full Name of Third Inventor, if any: see above

GIVEN NAME/FAMILY NAME	INVENTOR'S SIGNATURE	DATE*
Residence (City, State & Country)		CITIZENSHIP
MAILING ADDRESS (Complete Street Address including City, State & Country)		

Full Name of Fourth Inventor, if any: see above

GIVEN NAME/FAMILY NAME	INVENTOR'S SIGNATURE	DATE*
Residence (City, State & Country)		CITIZENSHIP
MAILING ADDRESS (Complete Street Address including City, State & Country)		

*DATE OF SIGNATURE